

Silicones support thermal performance of windows at one of the first eco-friendly construction in Turkey

Case Study: Sapphire Tower



The Project

- Constructed to combine restaurants, cinemas, retail outlets and housing zones, the Sapphire Tower is one of the highest structures in Levent, the central business district of Istanbul
- Consisting of two independent shells to protect residents from adverse weather and noise pollution, it is one of the first eco-friendly construction in Turkey, making optimum use of natural resources which facilitate lower energy consumption
- At 261 meters high and constructed from steel and glass, the tower embraces graceful curves as it becomes slightly tapered moving upward from its broad base
- There are recreation areas at every ninth floor interval which include internal gardens, mini golf and swimming pools
- Dow Corning® 3362 Silicone Insulating Glass Sealant and Dow Corning® 993 Silicone Structural Glazing Adhesive were specified for providing the secondary seal on the insulating glass units which make up the building facade

The Challenge

The Sapphire Tower boasts an impressive and expansive facade consisting of 55000m² of glass. In order to meet the stringent requirements for durability and thermal performance as specified by the architect, the insulating glass manufacturer was charged with the task of producing units in compliance with the European Norm (EN) 1279 Part 3 for many areas of the building including the entrance skylights.

The Solution

Dow Corning 3362 Silicone Sealant was specified for the secondary edge seal in the insulating glass units on each elevation of the glazed facade. Flexible, UV resistant silicone seals are increasingly selected for commercial glazing and for demanding roof glazing applications, particularly in areas of high temperature and where extreme weather may prevail – conditions which are a common feature of the Turkish climate.

In areas where argon filled insulating glass units were specified, Dow Corning worked in close co-operation with unit manufacturer Sisecam, to ensure that design and workmanship considerations were instigated and that the insulating glass unit system as a whole was reliable and gas tight. A special grade of Dow Corning 3362HD (high density) was used due to its ultra high modulus and well known excellent elastic recovery profile across a wide temperature range of silicone sealant which in turn is expected to provide a positive impact on gas tightness.

In addition, Dow Corning 993 Silicone Sealant was also designed for compliance with EN1279 Part 3 due to its compatibility with the Schuco FW50SG curtain walling system specified for the building entrance.

City
Istanbul

Country
Turkey

Products
Dow Corning® 993
Silicone Structural Glazing Adhesive
Dow Corning® 3362 and 3362HD
Insulating Glass Sealant

Building Owner
Biskon Construction

Architect
Tabanlıoğlu Architecture and
Consulting

General Contractor
Biskon Yapı

Consulting Office
MF Metall und Fassadenplanung

Façade Construction & Structural
Fabricator
Dekoral Aluminium Industry Trading
Co. LTD

Insulating Glass Manufacturer
Sisecam

Dow Corning 993 Silicone Structural Glazing Adhesive

Certified by European Technical Approval ETA 01/0005, Dow Corning 993 exhibits excellent weathering properties and high resistance to ultra-violet radiation, heat and humidity once cured. It is ideal for structural bonding of glass and metal, including coated, enamelled and reflective glass.

Dow Corning 3362 Silicone Insulating Glass Sealant

A neutral curing silicone sealant specifically formulated for use as a secondary seal in the manufacture of high performance insulating glass units, with outstanding adhesion to a wide range of substrates including coated, enamelled and reflective glass. Dow Corning 3362 has excellent temperature stability, is resistant to ozone and ultra-violet radiation and is certified by European Technical Approval ETA 03/0003 and complies with EN 1279-4 requirements.

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